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ORIGINAL ARTICLES

MANAGEMENT OF CONVALESCENCE IN RHEUMATIC HEART DISEASE*

By DR. WILLIAM P. BUFFUM
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Rheumatic heart disease is one of the most important diseases of childhood. Homer Swift states that in children of school age it is the largest single cause of death.[1] In New York City it is the leading cause of death among school girls and among school boys it is second only to accidents.[2] This disease is also a common cause of disability and distress, and figures could be given to show its wide prevalence. Rheumatic infection has been the subject of much study especially by Swift at the Rockefeller Hospital, and before speaking of the treatment I want to briefly review the nature of this disease. It should be emphasized that rheumatic infection attacks the periarticular tissues and the heart usually at the same time. If daily electrocardiograms are made, 95 per cent of all cases of polyarthritis show some heart involvement. About half the cases of polyarthritis show obvious clinical heart disease during the first attack and with recurring attacks this percentage is rapidly increased. Carey F. Coombs who has had a very large experience with rheumatic fever says that he does not recall seeing a single case that did not at some time have signs of heart involvement.

A clear cut case of polyarthritis with high fever, sweats, and marked joint involvement, lasting a week or two and then clearing up rapidly gives the classical picture of rheumatic fever. These are the cases which appear to yield most readily to salicylate treatment and also which are least likely to have permanent heart damage. Unfortunately more commonly there is a continued infection with rapid pulse and leucocytosis and at times a definite rise in temperature for a few days. This so-called polycyclic type of infection is more likely to cause severe heart damage. The worst cases of all are those which usually occur in younger children, and which show slight fever and little joint involvement, but in which the infection goes on for a long period. The activity of the infection may be shown only by the poor condition of the patient, heart signs, leucocytosis, rapid pulse and occasional very slight arthritis. It is not uncommon for the joint symptoms to be absent or so slight as not to attract attention, and the nature of the disease may be unrecognized for a long period. It may be that in two thirds of the cases the heart is involved before the rheumatic infection is recognized.[5]

The pathological process seems to be a focal destruction of tissue accompanied by proliferation of fixed cells and exudation. Variations of the process take place in the periarticular tissues, the heart, the subcutaneous tissues, the brain, probably in the tonsils, and at times in the lungs and kidneys and elsewhere. One example of this lesion is in the Aschoff body in the heart. The Aschoff body is a microscopic focus of necrosis surrounded by proliferated fixed cells. The other rheumatic manifestations such as the subcutaneous nodules and the periarticular inflammations are markedly different, but there is enough similarity to indicate that they are fundamentally the same process.

Disease of the heart valves has, until recently, always been considered an injury of the endocardium coming from the blood stream, and with infection extending from the exterior to the interior of the valve. It seems now more likely that the rheumatic process of necrosis, proliferation and exudation takes place in the interior of the valve. This results in lessening the vitality of the endocardium, and it breaks down at the edge where it is in contact with the other cusp of the valve.

The etiology of rheumatic infection is still uncertain. The non-hemolytic streptococci which have been isolated differ from each other culturally and immunologically and seem to be similar to those obtained from throats of non-rheumatic persons. Swift suggests that rheumatic fever is caused by an allergic reaction in a person who is sensitized to the infecting streptococcus, and that

*Read before the Providence Medical Association, May 5, 1930.

the rheumatic process is a reaction to the toxins of the focal infection in such a person. The more prevalent view is that the infecting organism is carried to and causes the areas of necrosis.

Drug Treatment

The drug treatment of rheumatic infection belongs chiefly to the acute phase of the disease, but convalescence may be interrupted by exacerbations during which salicylate should be used. Salicylate should always be used when there is fever, arthritis or any signs of active disease. This group of drugs acts as a specific in reducing the fever and in relieving the joint symptoms. Sodium Salicylate can be given from 100 to 200 grains a day. If ringing in the ears, or nausea appear the drug should be omitted for a day and then begun in only slightly smaller doses. Sodium salicylate can sometimes be taken by rectum if the child vomits easily. Aspirin makes a good substitute for sodium salicylate. Swift uses neocincophen if the above drugs are not well borne. These drugs are never given unless the patient is in bed. Before allowing the patient to get up, these should be omitted for several days as they may mask symptoms of active infection.

Digitalis treatment of the decompensated heart does not come within the scope of this paper as such a patient could hardly be called convalescent. Occasionally one of these children may show auricular fibrilation, in which case, digitalis theraphy may be advisable for a prolonged period.

The common type of case where the question of giving digitalis comes up is after the child is allowed up. His heart is compensated when he is at rest, but is not strong enough to allow much activity. I have not given digitalis in such a case, but it is said by some to be of value.

Convalescence may be considered to begin when the temperature is normal. The first important question which presents itself is when to let the patient out of bed. This should be done when it seems that the disease process is quiet from a clinical standpoint. I put it this way because in many cases the disease process continues to a minor extent for months or years as determined by autopsy. The child can be and should be allowed to gradually resume activity when the clinical signs of an active disease have disappeared. The determination as to whether to let the child out of bed can be made after considering the following facts.

The temperature should be normal. That means that it should be constantly under 99.5° for several weeks, the exact length of time varying with the length and severity of the disease. A temperature taken while the child is under the influence of salicylates may be deceptive as salicylates lower the temperature without necessarily checking the disease process in the heart. Salicylates should not be used during the period of observation before letting the child up.

The pulse rate should be normal and should return to the same rate in five minutes after walking across the room and back. What is normal for the child must be determined by the judgment of the physician but it should not be over 100. During convalescence, when deciding what to let the child do, a good exercise tolerance test is as follows. Have the child take the exercise, counting the pulse before and five minutes afterwards. If the pulse has returned to the original rate after five minutes, the exercise has been well borne.

The general appearance and color of the child should be good. This is an indefinite criterion but is fully as important as any other. The patient with active infection is usually pale, looks definitely ill. When the infection has stopped, the gain in appearance with return of color and vigor is striking.

The weight should be increasing. All through the next months and years the weight curve is one of the best indications. A child that is gaining weight is usually doing well and a child that is not gaining is probably in serious danger from increasing cardiac damage.

The heart condition should of course be carefully noted. The action in many cases should be quiet and approximately normal. A certain amount of hypertrophy and change in heart sounds will persist in proportion to the amount of permanent damage, but violent action and signs indicating functional incapacity and dilatation almost invariably are due to active or recent disease.

Whether the heart weakness is due to active infection or the damage caused by recent infection, the patient is kept in bed until he can walk in an ordinary manner without dyspnea, violent heart action or rapid pulse. At this time it is safe to let him sit up in a chair. When he gets so that he can run a little without the above signs it is safe to allow him to walk. Thus the work on the heart is always less than its capacity.

Subcutaneous nodules are only seen when the infection is active, and always mean that the patient must be kept in bed. These are somewhat similar to the aschoff bodies and are considered typical of rheumatic disease. They appear like small shot, usually much smaller than a b.b., under the skin on the extensor aspects of the joints and on bony prominences. The nodules are attached neither to the bone nor the skin and can be moved readily under the finger. These were found to be present by Merritt, Wilson and Poynton in 12%, 14.5% and 19%[2] respectively of all rheumatic cases. They indicate active disease of the more serious type.

The white count is not an entirely reliable guide but it is well worth doing. A leucocytosis of 15,000 to 25,000 is present during the acute phase of the disease. After the acute symptoms subside the blood count should return to normal. A persistance of the disease process may or may not be accompanied by a leucocytosis. If this leucocytosis is found, it indicates almost surely that the rheumatic infection is continuing. We are doing weekly white counts on these cases at the Rhode Island Hospital and have found them helpful. A weekly white count is a distinctly valuable procedure in certain cases.

The determination of vital capacity has been used as an index of the functional capacity of the heart.[3] This can be done in a heart clinic and is useful in the hands of one thoroughly accustomed to it. I have had no experience with this procedure myself and doubt whether it would be of any value in treating an occasional case in private practice.

The determination of whether the active disease has ceased is at times very difficult. It is not possible to rely entirely on any one of the above signs. Any one of these may mislead us. The appearance of the child, the examination of the heart, and the pulse and temperature chart give us a picture of the condition from which a judgment may be made. The white count is a valuable check and may save us from an occasional bad mistake.

After the child is up the weight curve seems to me the most useful guide. Occasionally a child is well up to weight and in this case the gain in weight is less important. Usually these patients are malnourished and their improvement is directly proportionate to the gain in weight. Also a loss in weight is likely to precede a relapse.

During further convalescence, after the patient is up, any recurrence of these signs of active disease shows that the patient should be put to bed again.

In general it is better to consider the child as a whole rather than to focus the attention too much on the heart. Relapses are due to increase in the disease process and this is not usually due to heart strain. The increase in activity should be slow and carefully regulated, as in pulmonary tuberculosis, with great care to avoid fatigue. Avoiding of running for instance is of little avail if the child is overtired by being on his feet too long. As his condition improves, it is well to keep his day short by having him stay in bed late and go to bed early, with a two-hour rest period in the middle of the day.

The violence of his exercise should be limited by the resulting dyspnea. For some months he should not be allowed to get out of breath at all. When his heart seems to have regained its strength as far as it probably will, there is no reason why he should not exercise to the point of ordinary dyspnea. A child with a moderate mitral lesion with some hypertrophy usually should ultimately be allowed to play baseball but not the most violent competitive sports such as hockey or running races.

In other ways the child's life should be carefully planned. Fresh air and sunlight are beneficial in improving the nutrition. The success of the heart hospitals and sanatoria seems to be chiefly due to the improving of general health and nutrition.

Unless the child is in a very good home under the care of intelligent people with the time to co-operate fully in this care, he is much better off at an institution. In the poorer sort of a home these children are likely to do badly and relapses with progressive heart damage are common. At present The Crawford Allen and Lakeside are doing well with a few cases but Providence needs more facilities for taking care of cardiac children.

All foci of infection should be eliminated. This includes abscessed teeth and infected sinuses.

There has been a great deal of discussion about the position of the tonsils in the etiology of rheumatic infection. Statistical studies do not show that the tonsils have any part in this disease.[6] On

the other hand I think that most physicians who have seen much rheumatism feel that the tonsils often play a big part in it. Probably if the cases which need tonsillectomy were carefully picked and then half were operated on in the best possible manner the statistics would show some benefit.

Tonsil infection shows itself by reddening of the anterior pillar, crypts from which material can be pressed, reddening of the tonsil itself and enlargement of the cervical glands. Probably a very small focus of infection can cause serious disease. I believe that tonsils which show any of these signs of infection should be removed. Also sometimes if the tonsils have been removed there are small regrowths of lymphoid tissue which are constantly red and which may be a focus of infection. These masses of lymphoid tissue should be taken out.

If the tonsils seem to be a focus of infection, tonsillectomy may be done early. A favorite time is about two weeks after the active disease is over and before the patient gets out of bed. I think each case should be considered on its own merits. If the tonsillectomy seems likely to do the patient much good it should be done early. Otherwise it can well be left until he is in good condition.

Tonsillectomy is likely to start active disease and it is well to have the patient under the influence of salicylate before operation and to watch him carefully in bed for at least a week after.

If proper care is taken of these patients the outlook is often better than we might suppose. Those who have had four or five serious relapses and have enormous hearts are almost sure to have more attacks. Those who have adhesive pericarditis or marked mitral stenosis are not likely to live long. On the other hand children who have had serious heart disease and have been in critical condition for months often do well and live long and happy lives. The cardiac insufficiency is usually due almost entirely to muscle weakness and very little to the valvular defect. If there is no active disease for several years, the regeneration is remarkable. Poynton has said that in following up a group of early rheumatic carditis cases, he found that one quarter of them had lost all signs of heart disease in fifteen years. We have had several such cases at the Rhode Island Hospital already. The more serious cases at times recover to a greater extent than would seem possible. These successes make the careful treatment of the rheumatic child seem worth while.

[1]Swift. Text Book of Medicine, Cecil, W. B. Saunders, 1928.

[2]Smith, C. H. Heart Disease in Infancy and Childhood, D. Appleton & Co., 1930.

[3]Wilson, May G. and Edwards, D. J. The Vital Capacity of the Lungs and Its Relation to Exercise Tolerance in Children with Heart Disease. *Am. Jour. Dis. Child.*, Chicago, 1921-*22*: 443-454.

[4]Stroud, W. D. and McMillan, T. M. Transactions of Section on Disease of Children of A. M. A., 1927.

[5]Coombs, Carey F. Diagnosis and Treatment of Rheumatic Heart Disease in Its Early Stages. *British Med. Jour.*, Feb. 8, 1930.

[6]Wilson, May G. Lingg, Clair & Croxford, Geneva. Statistical Studies Bearing on the Problems in the Classification of Heart Disease. *Am. Heart J.*, St. Louis, 1928, 4:197-209.

REMARKS ON THE TREATMENT OF NEUROSYPHILIS*

by

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Neurosyphilis, especially such forms as paresis and tabes, has long been looked upon with not a little degree of hopelessness, due to difficulties of successful management and treatment. It is only in recent years that our interest has ceased to be a more or less passive one and our methods of therapeusis more energetic and with a reasonable hope of accomplishing something. It is the purpose of this paper to discuss, in a general way, some of the problems and methods of approach to this serious type of disorder.

The medical profession has never been satisfied with the available therapeutic agencies to combat neurosyphilis. The anti-syphilitic drugs, relatively efficient in other forms of syphilis, are inadequate in the face of the high degree of impenetrability of the nervous system—an inpenetrability due to peculiarities of vascular and lymphatic structure. Although we are not yet in possession of an armamentarium that permits us to say definitely to a neurosyphilitic patient that he can be cured, we may say, with a reasonable degree of surety that, through persistent and persevering treatment, he can be greatly benefited. With our array of arsphenamines with their intravenous, intramuscular and intraspinal methods of administration,

*Read at the Annual Meeting of the Providence Medical Association, January 6th, 1930.

with tryparsamide and malaria, a more optimistic prognosis may be given to those patients who, fifteen years ago, were considered therapeutically hopeless.

Early in the past decade, the Swift-Ellis method of intra-spinal injection of salvarsanized serum gave promise of brilliant results. The *modus operandi* of this form of treatment is not yet fully understood. In order to be spirillocidal, anti-luetic drugs must penetrate the infected tissues, and, since arsphenamine possesses a low penetration index, in relation to the nervous system, it is doubtful if any method of its administration that merely increases its concentration in the spinal fluid necessarily indicates an increased spirillocidal effect. The Swift-Ellis method is not believed to exert any specific spirillocidal effect, but rather to cause, through an irritating action, an exacerbation of the local inflammatory processes, thus stimulating the natural defenses of this tissue. It is this exacerbation, however, that causes many of the disastrous results incident to this type of treatment—disastrous results that have all contributed to a decreasing popularity of this type of treatment. Ataxias may develop overnight, root pains may become worse, et cetera—all calling for embarrassing explanation. While the enthusiasm for this type of treatment has waned, it still deserves a place in our armamentarium, being indicated in resistant cases of tabes, or in cases of neurosyphilis where optic atrophy precludes an intravenous administration of arsphenamine. It is, however, no longer a therapeutic measure of first consideration in the treatment of neurosyphilis.

The various arsphenamines used in the treatment of neurosyphilis all have their enthusiastic supporters. The fact that there is no unanamity of opinion suggests that there is probably no great difference in therapeutic efficiency. Arsphenamine is perhaps the most efficacious, but the necessity of proper neutralization with alkali, and the severity of the untoward reactions have caused it to lose popularity with the general practitioner. At Butler Hospital, silver-arsphenamine, neo-arsphenamine, and sulpharsphenamine have all been used intravenously without any demonstrable superiority of any. Each drug possesses certain undesirable features, but sulpharsphenamine has recently become popular, however, by virtue of the excellent results following its intramuscular administration. Stokes, after a study of the comparative value of intravenous and intramuscular injection of sulpharsphenamine concludes that there is no special justification for its intravenous use, but that administered intramuscularly it is definitely superior to neo-arsphenamine and in neurosyphilis it seems even superior to arsphenamine.

The technique of the intramuscular injection of sulpharsphenamine is as follows. Into a 6/10ths gram ampoule, 1.8 cc. of water is added and the sulpharsphenamine brought into solution. It is important that this exact dilution namely 3/10ths cc. with every 1/10th gram be used. Any greater dilution tends to cause a local reaction of pain and inflammation. The site of the injection is high in the upper outer quadrant of the buttock. The higher the site and the further away from the midline the less the after pain due to pressure on that part in sitting. The injection can be given with a fine needle (20 gauge) about two inches long. After insertion of the needle, the plunger is pulled back slightly to determine whether or not, by chance, the end of the needle is in a vein. If no blood appears, the injection is given slowly. These injections are given every five days. The treatment may be followed by some pain at the site of injection but if the dilution is correct and the technique carefully carried out it is only slight and is relieved by pyramidon for two or three doses. No untoward results such as sloughing, abscesses, etc., have occurred in the hundreds of injections given by us. Anaphylactic and skin reactions, if they appear, seem to be delayed and mild. The therapeutic value of intramuscular administration seems to be greater than intravenous, and the advantages more than compensate for the mild pain and discomfort incident to this procedure. Sulpharsphenamine intramuscularly, then, deserves careful consideration because it is a drug which promises therapeutic effects approaching arsphenamine. It possesses the highest penetration power for the nervous system of any spirillocidal drug devised, standing in this respect second only to tryparsamide which, as will be discussed next, is not markedly spirillocidal.

With the presentation of tryparsamide to the medical profession in 1924, a new and useful drug was added to our armamentarium. Present indications are that its usefullness is limited to neurosyphilis. Its effect on primary, secondary, and tertiary syphilis elsewhere has been found to be

very slight—in fact, some cases seem to actually get worse with it. The therapeutic effect in neuro-syphilis is not clearly understood. It is but feebly spirillocidal—the arsphenamines being ten times stronger. Yet it has proven a valuable drug, especially in the treatment of paresis. Used alone, it improves the general health and causes a fall in the cell count and globulin content of the spinal fluid. Used concurrently with other anti-luetic drugs, it hastens a reversal of the Wassermann reaction and Gold Chloride Test. There are two explanations of its beneficial action. The fairly constant gain in weight and feeling of well being, following its administration, suggests a stimulating effect on metabolism thus augmenting a natural resistance to the disease. On the other hand, due to its penetrating power, proven definitely superior to any of the other arsenicals, it may exert a higher actual value in spite of its low spirillocidal index. Its action is not wholly understood. Tryparsamide has an arsenic content of 25 per cent compared with approximately 20 per cent in the arsphenamines. The average dose is 3.000 grams—five times that of the arsphenamines. In spite of this apparently massive dose, toxic symptoms are rarely encountered. The explanation of this is that the arsenic in the arsphenamines is in a tri-valent form and in tryparsamide in a pentavalent form which is very much less toxic. Tryparsamide is eliminated from the body in 24 hours so that accumulative effects are not likely to occur.

The usual dose of tryparsamide for an adult is 3.000 grams given intravenously in 10-15 cc. of water at weekly intervals. If, for any reason—age, weight, eye complications, etc.,—it is advisable to give smaller doses, it is better to give the usual dose and increase the time interval than it is to give small repeated doses. According to some observers, small doses of less than 1.000 gram tend to aggravate the symptoms. Tryparsamide was formerly administered in courses of varying length but usage has shown that an interrupted schedule is to be avoided. The usual procedure at present is to give tryparsamide continually at weekly intervals along with other forms of treatment. In some clinics, patients have, to date, received it continuously for three years without any apparent deleterious effects. One hundred and fifty grams must be a minimal dosage to get any appreciable effects. The greatest degree of improvement with tryparsamide, occurs in meningo-vascular syphilis and paresis.

The visual disturbances produced by tryparsamide and the possibility of injury to sight have instilled a fear of its usage. The precise extent of this risk, and the means of its avoidance should, therefore, be fully understood by all who attempt to use the drug. The danger signals are fairly constant and consist at first of subjective complaints of blurring and dazzling of vision. Some patients describe it as seeing a, or as looking into a, field of snow in bright sunlight. The usual time of onset is 12-24 hours after treatment. These reactions occur within the first ten injections, if they are to occur at all. They are merely indicative of a disturbance of the function of vision—no objectively detectable damage is to be found by retinal examination. If the administration of the drug is stopped, they clear up promptly and without any permanent damage. If continued, however, permanent damage may occur, ranging from concentric diminution of vision (tubular vision) to amblyopia, or even optic atrophy. The indications are that the tendency to the occurrence of ocular injury runs more or less parallel to the normal incidence of such lesions with the different forms of neuro-syphilis, and that the greatest incidence is in cases of tabes, tabo-paresis, and paresis in the order given. The occurrence of eye complications does not mean that the patient must forego tryparsamide treatment forever. After a month's rest, its administration may be tried again many times with success.

It was earlier thought that tryparsamide was contraindicated in optic nerve involvement due to syphilis but further experience indicates that even patients with primary optic atrophy can be treated without affecting the process. Some cases actually seem to be benefited and possess a wider field of vision after treatment. Treatment under these circumstances must be very cautious, however, and frequent perimetric fields done to detect any added damage that may occur due to tryparsamide. Choroiditis and retinitis likewise do not contraindicate its usage. While tryparsamide is admittedly a dangerous drug, with proper care in management, the unfavorable results can be reduced to a minimum. During the past two and a half years, although many cases developed symptoms of idiosyncrasy to the drug, we have had no cases where permanent damage to vision has resulted.

Tryparsamide cannot be depended upon alone in the treatment of neuro-syphilis. It is ideally administered with some other anti-luetic drugs. It,

in conjunction with sulpharsphenamine intramuscularly, constitutes a rational therapeutic approach.

The problem of the veinless patient is of serious import. One meets this situation frequently in the obese patient with inaccessible or with only small very superficial veins into which injection is difficult. It may be a more or less temporary problem if, through faulty technique, the tissues are infiltrated with resultant induration. This has meant, in many cases, that the patient foregoes adequate treatment. Realizing the seriousness of this problem, we have practised a technique for the treatment of the veinless patient which enables him to receive adequate treatment. The problem is that of administering tryparsamide—sulpharsphenamine being given intramuscularly as previously described. Subcutaneous injection of tryparsamide is not satisfactory—large areas of inflammation and induration resulting. Given intramuscularly, using the following technique, these unfavorable effects are eliminated. Three grams of tryparsamide are dissolved in 5 cc. of hot water giving a very saturated solution. It is important that the water, mixing glass, syringe, etc., be warm or else solution will not be maintained. This solution is injected very slowly using the same technique of injection as with sulpharsphenamine. Occasionally, there is slight pain on injection but this can be reduced to a minimum by very slow injection. Having a very great penetration power, the drug is quickly absorbed, appearing in the blood stream soon after injection and disappearing with the same speed as after intravenous injection. There is no resultant induration if the injection is given deeply into the gluteal muscles.

We have at various times, received inquiries as to the routine of our treatment and management. While we follow a general plan, we adhere to no fixed routine. Examination of our treatment sheets will reveal that no two patients have received like treatments. Each case must be judged by its merits. Feeling that the successful treatment of neuro-syphilis depends on intensive treatment and that the intensity of treatment depends directly upon the ability of the organism to handle the drugs used, each patient is put through a thorough series of clinical examinations. A careful physical examination, a blood count, blood chemistry, renal function, a series of urines, and a complete study of the spinal fluid enable us in a general way to evaluate the situation. There are some intangible factors, however, presumably metabolic, that play an important part. Some patients in apparently good condition handle the drugs poorly. Especially is this true of the senile patients who are better left alone. A fairly typical therapeutic approach is as follows: Considering the possibility of a cerebral Herxheimer reaction with excerbation of the mental state, or development of ataxia, vascular accidents, convulsions, etc., a mild treatment consisting of tyyparsamide and bismuth is given each once a week for several weeks. If there are no untoward reactions, more vigorous treatment is then given, consisting of sulpharsphenamine intramuscularly and tryparsamide intravenously each once a week. In some cases, bismuth may be given in conjunction to this type of treatment. Blood and spinal fluid examinations are done once a month to observe the effect of treatment. In selected cases, the spinal fluid is drained every three weeks. This type of treatment is continued until there are appreciable changes in the spinal fluid evidenced by a fall in cell count and diminution in the Wassermann reaction and Gold Chloride curve. Treatment of some type is given continuously. If improvement occurs up to a certain point and then seems to have reached an impasse, we do not ordinarily advocate any rest period that is absolutely free from treatment. Tryparsamide is always given in an uninterrupted schedule. Bismuth may be substituted for sulpharsphenamine for several months after which the usual routine of sulpharsphenamine and tryparsamide is resumed. The nursing staff has been carefully trained in observing signs of toxicity and a report of the charge nurse as to whether or not toxic symptoms have occurred during the interval between treatments accompanies the patient when he comes for his next treatment. Urinalyses are done twice a week to detect any signs of renal irritation. The tabetic receives exercises, muscle massage, etc., in conjunction with this type of treatment. The unusual advantages of hydrotherapy, rest, excellent food, recreation, etc., afforded by the institution are all important adjuncts. As soon as the patient has sufficiently improved, he is allowed to go home and back to some form of occupation. An evening out-patient clinic offers to him the opportunity of further necessary treatment at a very nominal fee.

Two points worthy of much emphasis present themselves at this time. There is a tendency to lay

more stress upon the clinical results and to comparatively ignore the serological findings. Clinical and serological improvement do not go hand in hand—the former frequently outstrips the latter. Many who show the greatest clinical improvement show very little serological change. The necessity of continuing treatment therefore in the face of clinical improvement is obvious. Nor does a negative spinal fluid or gold chloride curve warrant a complete let down in treatment. It is all too frequent an experience to find a negative Wassermann followed in several months by a positive. The gold chloride test likewise seems to be capricious, giving various types of curves and oscillating between positive and negative reactions. Treatment should be continued until three examinations of the spinal fluid, done at monthly intervals, are consistently negative. While the therapeutic agencies available for the treatment of neuro-syphilis are not yet entirely satisfactory, we have at our disposal an effective mode of attack. With careful management and perserverance on the part of both the physician and patient, much can be done to combat this serious type of disorder.

In closing, a few words on the diagnosis of general paresis will not be amiss. Our previous notions concerning the early mental symptomatology need revision. The classical picture of paresis has been one in which the paretic is characterized by a grandiose and expansive mental state; thus, one has learned to associate the term "paresis" with a mental state in which the individual expresses himself in terms of power, riches, et cetera. This grandiose expansive mental trend, together with such symptoms as memory defect, impairment of judgment, and a general dilapidation of the higher aesthetic feelings, with consequent character changes, has long been the criteria by which the diagnosis of general paresis has been made. In recent years, however, due to a freer use of the lumbar puncture needle, we have come to realize that the majority of paretics are not "classical." Whether there is a changed symptomatology, or whether this is due to more early diagnosis, one can only speculate, but today we find the classical picture is present in only about 30 per cent of cases. The mental symptoms of the remaining 70 per cent are varied, and, in order to understand this variance, one must recognize the fact that mental states represent the reaction of the individual to a situation, and that the type of reaction is determined by the reaction pattern peculiar to that individual. An individual with a psychoneurotic predisposition may, under stress and strain, whether mental or physical, assume a psychoneurotic state—a state which is his reaction to his situation. So we may get as early symptoms of neuro-syphilis, such mental syndromes as the psychoneuroses, depressions, manias, schizophrenia (dementia praecox), paranoid states, et cetera, all representing the individual's reaction to the situation— in this case organic in nature.

One cannot over-emphasize the truth that paresis is a very protean type of disorder, and, just as visceral syphilis may simulate any number of diseases, paresis can simulate any type of mental disorder. The old medical axiom, "When in doubt, suspect syphilis," can very well read, "When in doubt, suspect paresis," whenever a patient between the ages of 30 to 60 shows an abnormal mental trend of any sort. In many instances the onset of paresis is very insidious. The early symptoms may be entirely somatic and have no reference to the central nervous system. The multiplicity of the complaints may mask the underlying vital condition, so that the paretic is very apt to be incorrectly diagnosed. It is the paretic who is not "classical" that causes the greatest number of diagnosis. A more liberal use of the lumbar puncture needle and blood Wassermann tests cannot be over-emphasized.

SINUSITIS IN INFANTS AND CHILDREN*

By

N. A. Bolotow, M.D.
108 Waterman St., Providence, R. I.

The purpose of this paper is to convey the importance of the early recognition and the proper treatment of sinusitis in infants and children. The difficulty of examining and diagnosing sinus conditions in young patients is probably responsible for the opinion that such conditions are rare. But this disease is far more common than is supposed, particularly in our own New England climate. It is taken for granted by many practitioners that nasal discharge in children is due entirely to diseased adenoids. "Nasal drops" medication is used

*Read before the medical staff of the Memorial Hospital, Pawtucket, R. I., on Feb. 6, 1930.

to try to stop the discharge until such time when the child is deemed old enough for tonsil and adenoid operation. And in due course the operation is performed, but with no marked improvement in the child's condition. The "drop" treatment is again instituted, but as the child grows older he develops symptoms and complications which require investigation for a focus of infection. It is then, after negative findings elsewhere, that attention is directed to the sinuses. In fact, until recent years sinusitis in infants and young children was diagnosed only when serious complications such as orbital abscess, abscess of the soft parts of the cheek or of the roof of the mouth occurred.

The maxillary sinuses are present at birth in a very rudimentary form. Their permanent shape and normal position are not attained until after the eruption of the permanent teeth, between the 15th and 18th years. The frontal sinuses are not present at birth but begin to develop about the second year and usually are not recognized as distinct sinuses until about the eighth year. The ethmoid and sphenoid sinuses are present at birth, developing slowly and not assuming their complete form until puberty or even later. This is what is considered the normal development of the paranasal sinuses. All sinuses, however, do not adhere to the normal in their formation. Some of the sinuses may be absent or may show only a rudimentary development or even a precocious and excessive development.

The important points to remember concerning the anatomy of the sinuses in children is that the floor of the maxillary sinus is higher than in the adult; that the maxillary floor is thick and contains unerupted teeth; that the frontal sinus is usually absent in infants; that the sphenoid sinuses may or may not be present; that the ostia are relatively larger than in the adult, due to the shallowness of the sinuses; and that in infants and young children we deal mainly with the ethmoid cells and with the maxillary sinuses. These sinuses are of greatest clinical significance; next in importance come the sphenoids; and last the frontals.

The most common source for infection of the sinuses in infants and young children is the presence of diseased tonsils and adenoids. Not only do these structures infect the sinuses by direct contiguity of tissue and through the lymphatics, but adenoids may mechanically so obstruct the upper posterior nasal passage as to actually dam up secretions. These being stagnant soon become mucopurulent and subsequently cause sinus disease. The acute infectious diseases also are very important etiological factors. Influenza is responsible for many sinus infections. Paranasal sinus infections due to diphtheria and scarlet fever are serious and make the prognosis very grave. Sinus disease is often secondary to general infections of the upper respiratory tract. It is rarely ever that an acute coryza exists which does not involve the sinuses, because the mucous membrane of the nose is continuous with that of the sinuses. Due to the thickness of the floor of the maxillary antrum in children, infected teeth are not important etiological factors. Exostoses and deflected septa, while very rare in infants, are common in late childhood and are then important factors, mechanically causing sinusitis.

Acute sinus disease in children is usually secondary to a chronic condition, except when complicating an infectious disease. In acute involvement of the sinuses, the predominant symptoms are nasal stoppage, a feeling of fullness in the head, and fever (sometimes as high as 105 degrees). In chronic sinus empyema, pain and fever are not usually present except during an acute exacerbation. The pain in maxillary empyema may be referred to the region of the supraorbital notch, thus giving a frontal headache. Pain is always elicited by pressure on the floor of the frontal sinus in empyema of that sinus. Chronic empyema of the sphenoidal sinuses may give rise to neuralgic headaches due to involvement of the sphenopalatine ganglion, or the second or third branch of the fifth nerve. Listlessness, poor appetite, underweight and poor color, which persist after removal of the tonsils and adenoids, are suggestive of chronic sinus disease, particularly if the pediatrist can find no other cause.

Two very prominent symptoms of sinus disease in infants and young children are nasal discharge and nasal stoppage. These are not always indicative of sinus disease, because they may be caused by the presence of a nasal or postnasal obstruction due to other conditions. These symptoms may even be absent in the presence of severe sinus disease. Thus, in closed empyema of a sinus where the ostium is blocked, there may be no discharge seen in the nose. In infants, the discharge usually is directed into the pharynx and swallowed, so that no discharge may be suspected. If pus is discov-

ered in the nose in the neighborhood of the ostium of a sinus and wiped away and reappears in a very short time, undoubtedly sinus disease is present, because the mucous membrane cannot so soon produce the purulent secretion. Sneezing is a common sinus disease symptom in infants, but it may also be a symptom of other conditions.

Among the complications of chronic sinus infections in infants and children are: infectious arthritis, endocarditis and kidney conditions, due to the focal infection; neuritis due to anatomical proximity or to irritation from toxemia; acute osteomyelitis of the bone surrounding the diseased sinus; swelling of the adjacent soft parts; and abscess formation in the orbit or of the cheek. Any of the structures of the eye may be involved as a result of sinusitis, particularly of the posterior ethmoids and the sphenoids. Cavernous sinus phlebitis, meningitis, pharyngitis, laryngitis and bronchitis may be complications. Violent gastric symptoms such as abdominal pain, vomiting and diarrhea, may be the result of swallowing purulent secretions from the sinuses. The reason for an unexplained temperature may be found in the toxemia from infected sinuses. Very important among the complications is chronic bronchitis. This infection probably takes place directly through the lymphatics of the neck which drain into the mediastinal glands. There is also a probable direct irritation of the peribronchial glands from inhalation of septic secretions. The child is usually undernourished, has a chronic cough and possibly slight temperature. An X-ray film may show mediastinal and peribronchial gland enlargement. The case may be wrongly diagnosed as one of hilum tuberculosis. Many of these wrongly diagnosed cases are treated with ultra-violet light and general hygiene and proceed to improve. Even with this kind of treatment, however, a certain proportion continue to have respiratory symptoms which lead to further investigation and change in the diagnosis.

Disease of the maxillary antra may be diagnosed by endonasal puncture, aspiration and culture. Disease of the frontals may be excluded by X-ray. Disease of the ethmoidal cells may be diagnosed by anterior rhinoscopy and by the use of the nasopharyngoscope. Disease of the sphenoids may be detected with nasopharyngoscope, actually seeing pus coming from the sinus or noting pathological changes about the ostium which suggest involvement.

Anterior rhinoscopy is rather difficult and unsatisfactory in infants and young children. Normally the mucous membrane differs from the adult type in that it appears edematous or slightly hyperplastic. The turbinates appear much thicker and rounder. In the presence of a purulent or mucopurulent discharge from sinus infection, the mucous membrane is dark red, thickened and boggy. The turbinates, too, are enlarged and boggy. This condition of the mucous membrane may also be seen in the pharynx due to the constant bathing in pus.

Posterior rhinoscopy with the nasopharyngoscope is usually unsatisfactory, because of limited space for instrumental manipulation and because of the delicate, easily traumatized mucous membrane. Oftentimes, however, it may reveal important information regarding sphenoid or posterior ethmoid disease.

Transillumination does not give much information. The thickness of the antral floor containing the unerupted teeth interferes with the light passing through.

The X-ray examination is a most important diagnostic procedure. Only by such an examination can we tell definitely whether a sinus is present and, if present, whether it is of clinical significance. Operative procedure should not be attempted without preliminary X-ray studies. The variations in size of the paranasal sinuses in infants and young children are so great that without the X-ray film there is no proper understanding of the case. However, for diagnosis of a pathological condition of the sinuses, X-ray examination alone is rather unreliable. The thickness of the bone and the fact that the bone is cancellous may give a blurred picture and thus not permit a very satisfactory X-ray interpretation. A clear picture of a sinus, however, is very valuable as a negative diagnostic finding.

In the treatment of acute uncomplicated sinusitis, a calomel purge, a shrinking spray, a restricted diet and rest in bed will usually bring about a favorable termination. Some men advocate the use of nasal douching, but it is hard to properly douche a nose in children without danger of causing middle ear infections. Therefore, suction is undoubtedly a much safer method of ridding the nose of secretions.

In every case of chronic sinusitis, diseased tonsils and adenoids should be removed, because a very large number of diseased sinuses in infants and children have been cured without any other treatment. Nasal sinus disease complicating atrophic rhinitis and syphilis do not improve much by removal of the tonsils and adenoids, but treatment of the sinuses together with the proper systemic treatment give fairly good results. A warm climate also has a very decided beneficial influence on chronic sinusitis.

Diseased antra may be washed out with normal saline and then antiseptics such as argyrol, silver nitrate, Dakin's, mercurochrome, metaphen, alcohol and others, may be injected into the sinus for their bactericidal action.

When abscess formation has taken place into the orbit or the cheek, intranasal drainage may relieve the condition, but usually external operation is indicated. Suction and drops are the usual non-operative procedures. Some men use autogenous vaccines with varying results.

The purpose of operative measures is to give drainage and aeration to the infected areas. In the maxillary antrum this is accomplished by making an opening through the lateral nasal wall. The antrum may be washed easily or, when indicated, polyp formation, diseased mucous membrane and carious bone may be removed. In these operations it is attempted to disturb the turbinate bones as little as possible. The ethmoidal cells may be opened wide and completely removed if necessary. The anterior wall of the sphenoid may be removed if indicated.

Radical operations on sinuses in children should not be done unless life is in danger or until all conservative measures have been exhausted. Even ordinary surgical measures should be as conservative as possible.

Taking into consideration the size of a child's nares and the anatomical variations in the sinuses, the fact that a diseased sinus may exist without being suspected, the fact that children as a rule are not satisfactory patients to treat, and the fact that so many serious complications may arise, the diagnosis and treatment of sinus conditions in infants and young children is as important as it is difficult.

MEETING OF THE NEW ENGLAND OBSTETRICAL AND GYNECOLOGICAL SOCIETY

The second clinical meeting of the New England Obstetrical and Gynecological Society was held in Providence, April 30, 1930. Clinics were held at the Rhode Island Hospital, Lying-in Hospital and the City Hospital morning and afternoon. Approximately 100 men from every New England state were in attendance.

At the Rhode Island Hospital there was an operative clinic given by the gynecological staff. Drs. Pitts and Waterman reported a series of 92 cases of carcinoma of the cervix treated by radium element contained in tubes and steel needles. Eighty-eight cases were traced for a five year period with a cure rate of 17.4% for all cases and 18.2% of cases traced. Four tables of results were shown. The first table showed the results for each year. In the second table the results were arranged in age groups. The third table was arranged according to the clinical groups and the fourth table showed comparative results in several different clinics. Emphasis was again laid on the necessity as shown by the tables of early diagnosis and treatment of carcinoma of cervix if better results are to be obtained. Dr. Pitts reported two cases of diverticulae of the urethra in the female and exhibited slides showing the floor of the female urethra in various stages of its development and diagramatic drawings of the two cases reported in one of which two stones were shown in the diverticulae.

Dr. Clark showed pathological specimens which were of gynecological interest and read a paper on benign tumors containing endometrial tissue and reviewed the theories as to histogenesis. Lantern slides were shown illustrating these tumors as seen at the Rhode Island Hospital. Luncheon was served to those attending the clinic by the courtesy of Dr. Peters.

At the Lying-in Hospital morning session the program was designed to set forth the aims, staff organization and work of an obstetrical hospital not affiliated with a medical school. Dr. Brackett outlined the aim of the hospital—to fulfill the three fundamental functions of every well organized hospital—to treat the sick, train doctors and nurses and serve as a community centre to educate

(Continued on page 141)

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The R. I. Medico-Legal Society—Last Thursday—January, April, June and October. Henry M. Boss, Jr., President; Dr. Jacob S. Kelley, Secretary-Treasurer.

EDITORIALS

"SPEAKING OUT OF TURN"

An interesting editorial criticising doctors for not keeping their appointments recently appeared in the *Saturday Evening Post*. The writer seemed fair so far as he knew the problem. He did not appear to appreciate, however, that human bodies are not machines and that disease does not follow a time schedule.

As evidence of lack of understanding of the physician's problem the editorial quotes the routine of an internist who makes his hospital visit at seven in the morning. The first patient is seen at eight thirty A.M. The morning hours are divided into consultation periods of twelve minutes. Longer examinations are given two or more periods. If these are not sufficient the doctor has the patient return at another time. The afternoon is kept open for emergency consultations and for short notice appointments for those who are willing to pay a double fee for immediate attention.

Although the writer of the editorial is at a disadvantage in that he has insufficient space to be clear, a few things come immediately to the atten-

tion. First, what happens to the poor soul who needs an emergency consultation in the forenoon? Does he have to wait for the doctor's time for emergency consultations? The patient would indeed be unfortunate. In true emergencies the patient might very well die. Perhaps some other doctor who realizes he is dealing with human beings is willing to let patients wait a little in order that the emergency may be seen. Of course a few of his patients would refuse to wait even if it did mean life to another individual, but their number is exceedingly small.

The editorial doesn't explain how the doctor, or possibly his secretary, knows who should have twelve-minute appointments, and who should have longer ones. More frequent than emergencies are patients who need more attention than, let us say, twenty-four minutes. These, I assume, are told to return another time. Many patients are not able to return or to pay double fees. Some of these patients fear to leave their work. For others frequent visits are a great physical hardship. others want to catch a boat for Europe. So many, for good or bad reasons do not return. Perhaps these patients would rather waste a few extra minutes in the waiting-room if something were really accomplished.

The best argument against a rigidly enforced schedule in a doctor's office is the fact that it is not generally carried out by the profession. The advantages to the doctor of a definite schedule are so great that one may be pretty sure he would have one if possible.

THE EDISON TEST

The recent test conducted by Mr. Thomas A. Edison and his associates to find a worthy young man for future educational advantage at the expense of Mr. Edison, provokes in us a threefold interest.

It renews our admiration of the great inventor and his foresight in constructive benefaction—providing the opportunity and means for specialized study to a boy showing future promise without providing him with prosperity and its attendant loss of initiative.

It gives a great deal of local satisfaction that a Rhode Island boy passed the highest examination among the forty-nine of the Nation's most promising young men. We congratulate the winner upon his effort, his acuity, his modesty, and most of all upon his opportunity.

It brings up renewed speculation as to the value of any examination in distinguishing one individual from another in mental capacity. In this case the result will not be determined until the careers of many of these boys may have been tallied and compared after the elapse of years.

Of particular note are the hypothetical questions in these interesting tests, wherein the contestant must commit himself to a definite ethical, moral, and common sense course of action, given a number of incompatible factors of hypothesis. One eminent professor has gone so far as to call these hypothetical questions "Absurd."

Of course they are absurd, and no doubt the examiners intended them to be so, purposely introducing conflicting factors which would allow for almost any construction and many solutions to the problems, any of which are correct and any of which are incorrect. But, of course, the true value of it all lies not in the solution, but in the manner of attack. That is what gives insight into individual ingenuity, personal ethics, moral values, and motive determinants.

As physicians, we see almost daily "absurd" problems where the hypothetical premises conflict. We see symptom complexes which do not conform to standardized tables or "text book pictures." Our factors are symptoms and signs, and our diagnosis are the solutions to the problem. How often do the observed facts lead directly to the correct diagnosis? And strange as it may sound, it is not so often the actual diagnosis that finally solves the problem, which stamps the skill of the physician as it is his power of observation in enumerating the facts, his analysis of their relative importance, coupled with his experience with the unfailing laws of nature and accurate laboratory methods.

Everyone faces "Absurdities" in life and everyone meets seeming conflicts of conditions which are difficult of analysis. How well Mr. Edison must realize this, and how well do his accomplishments illustrate that the real solutions to problems are dependent upon patience, industry, the analytical type of thought, and the ability to evaluate factors.

The method of approach of a seemingly impossible problem is the essential agent for its solution.

THE HOSPITAL AND THE COMMUNITY

No city is considered complete unless it has within its borders a modern hospital. That hospital is not considered an institution that merits the support of the community unless it has the facilities for ministering to the needs of the people according to modern standards.

It is greatly to the credit of materialistic America that so many of the hospitals depend on individuals rather than on municipalities and states. The hospitals that have been started and continued by individuals or by groups of individuals have done much to further medical progress. These institutions are not hampered by control by legislation and can be guided by the ideals of a progressive staff of medical men or of an alert board of governing laymen.

The value of the hospital to the community can not be measured in dollars and cents. The voluntary service of many who believe that "it is more blessed to give than to receive" and who practice that belief can never be adequately measured. There are always some people in every community who criticize the hospital for some shortcomings. It can be stated, however, that every hospital is an advantage to its community and some hospitals not only serve the people of its immediate environs, but also add to the advancement of medical progress of its country and even of the whole world.

ANNOUNCEMENT

NATIONAL BOARD OF MEDICAL EXAMINERS

225 South Fifteenth Street
Philadelphia, Pa.

Philadelphia, Pa.—At the recent Annual Meeting of the National Board, the following officers were elected: Waller S. Leathers, M.D., President; Everett S. Elwood, Executive Secretary; J. S. Rodman, M.D., Medical Secretary.

In addition to the officers, eight new members were elected for terms of six years each. Three of these are representatives of the Federation of State Boards of Medical Examiners in the United States. They are as follows: T. J. Crowe, M.D., Secretary, Board of Medical Examiners for the State of Texas; J. Gurney Taylor, M.D., member of the Wisconsin State Board of Medical Examiners; and J. H. J. Upham, M. D., Dean of the Ohio State University College of Medicine and member of the Ohio State Medical Board.

The remaining five members were elected at large. They are as follows: Charles A. Elliott, M.D., Professor of Medicine, Northwestern University Medical School; William DeB. MacNider, M.D., Professor of Pharmacology, University of North Carolina School of Medicine; Walter W. Palmer, M.D., Professor of Medicine, Columbia University College of Physicians and Surgeons; E. D. Plass, M.D., Professor of Obstetrics and Gynecology, the State University of Iowa College of Medicine; and Charles R. Stockard, M.D., Professor of Anatomy, Cornell University Medical College.

In addition to the new members, Dr. Howard T. Karsner, Professor of Pathology, Western Reserve University, was elected for a second term of six years to succeed himself.

The constitution of the National Board of Medical Examiners was so amended at the Annual Meeting that its membership was increased from twenty-one to twenty-seven. The amendment provides that a total of fifteen memberships shall be representative and twelve elected at large. Six of the fifteen memberships are made up of the three Surgeon-Generals of the United States Army, Navy, and Public Health Service, and of an additional number from the Medical Corps of each of these services. Five memberships are made up of representatives from the state boards of medical examiners. Prior to this the state boards have had only three members to represent them. Two of the representative memberships are from the Council on Medical Education and Hospitals of the American Medical Association, and two from the Association of American Medical Colleges. Except the memberships from the Federal Services, the term of office is six years and no member can have more than two consecutive terms.

The reports of the officers of the Board showed an increase of approximately ten per cent in the number of candidates taking the examinations during the past year as compared with the year previous.

The number of state boards now recognizing the National Board's certificate total forty besides the territories of Hawaii and Porto Rico and the Canal Zone. Partial recognition is also granted the National Board's examinations by England, Scotland, Ireland and Spain.

Examinations in Part I and II were scheduled and given in forty-one centers throughout the country; there being a total of 707 candidates registered for Part I and 337 for Part II. Examinations in Part III, the clinical and practical examination, were held in sixteen centers in June and July with approximately 280 registered candidates.

OBSTETRICAL AND GYNECOLOGICAL SOCIETY

(Continued from page 137)

the laity in health matters. He described how the staff was organized to carry out this purpose.

Dr. Jordan discussed the hospital as an economic institution and the effort which the hospital made to serve all classes in the community at rates which the various types of patients can afford to pay. He insisted that all patients should contribute to the support of the hospital in proportion to their financial ability. He had found that many patients were glad to pay for their treatment in divided payments spread over a period of time—some starting payment months before their admission to the hospital and others at a convenient time after their discharge. He found that approximately one fourth of the patients admitted were actually unable to pay anything.

Dr. Potter described the work of the pre- and post-natal clinics. He felt that these clinics were as useful to the patients and furnished as valuable training to the doctors conducting the clinics as the house service itself.

Dr. Fulton summarized the work of the special cardiac clinic to which all heart cases both in the pre-natal clinic and in the house are referred. About 9½% of all patients admitted to the hospital were referred to the clinic. Four per cent of all patients admitted were found to have organic heart disease. Dr. Pinckney who is in charge of the tuberculosis clinic emphasized the fact that pregnant women must of necessity show as high a percentage of tuberculosis as any other group of equal age in the community. He made a plea for a thorough history, physical examination and chest X-ray of every pregnant woman believing that in this way many unsuspected cases of tuberculosis would be found which with proper treatment might be spared from the recrudesence at this critical period of life. The babies of these women could be effectively guarded against infection from their mothers.

Drs. Leech, Messinger and Hacking spoke briefly of the work of the eye clinic to which all patients complaining of visual disturbance, of spots before their eyes or systolic blood pressure 150 or over are referred. All the members of the special clinics emphasized the great advantage of co-operation between the obstetrician, himself a specialist, and specialists in other branches of medicine.

Dr. Appleton showed an extremely interesting series of moving pictures. They showed even better than could be done by ward rounds, the labor room and ward technique and the care of premature infants.

Dr. Utter reported on the work of the pediatric department, discussing particularly the care of the new born premature infants. He stressed the importance of the immediate post partum care of prematures who should be treated with extreme gentleness. The first few hours or even minutes of their lives are the most important for these very delicate babies. Maintenance of body temperature and the early administration of proper diet are of paramount importance.

Dr. Adelman summarized his findings on 80 autopsies on new born infants. He stated that only by such autopsies could the obstetrician increase his knowledge of neonatal conditions and improve his fetal mortality records. He found that in his series intra-cranial hemorrhage was found in 28%, which is distinctly lower than in most series reported. Of the 23 cases, 11 followed normal deliveries and 12 operative procedures. In no case did he find thymus pathology the sole abnormality or the sole cause of death and was inclined to think that the importance of *status lymphaticus* in new born infants had been over emphasized. He found six cases due to infection, four of which must be classified as of intrauterine inception.

Dr. Pickles talked on caudal combined with local abdominal and gas oxygen anesthesia; he outlined the *rationale* and technique of the method. He felt that the addition of general anesthesia by gas oxygen was indicated to combat psychic shock which in many cases may be pronounced.

The afternoon clinic—Dr. Noyes showed lantern slides of tables analyzing 57 cases of toxemia of pregnancy with convulsions which had occurred

in the hospital for a three year period from 1927 to 1929.

Dr. Walsh gave a summary of the results in 176 cases of placenta praevia treated in the hospital for a ten year period ending December 21, 1929.

Dr. Sweeney advocated an intra-muscular injection of maternal blood following all operative deliveries. He believes that the incidence of intra cranial hemorrhage may be reduced by this procedure, on the theory that the coagubility of the blood is increased especially in that small number of cases in which hemorrhagic disease of the new born might develop.

Drs. Buxton and McDonald reported a case of Korsakoff's syndrome in a patient profoundly toxic from pernicious vomiting of pregnancy.

Dr. Brackett reported a case of abdominal pregnancy operated upon in which both mother and child were discharged from the hospital living and well.

At the City Hospital in the afternoon Dr. Richardson demonstrated the technique of medical asepsis as carried out in that institution. He brought out the fact that streptcoccus hemolyticus is present in a very large percentage of all patients suffering from infections of the upper respiratory tract including tonsillitis and pointed out the probability of some otherwise unexplained cases of wound and postpartum infections being the result of infections from carriers harboring these organisms in their noses and throats.

The business meeting was held at four o'clock in the Rhode Island Medical Society building. One resolution of particular interest to every physician whether obstetrician or general practitioner who does any obstetrical work was passed. It was voted that every New England state society be requested to appoint a committee to investigate obstetrical mortality in its own state. It has been widely advertised both in the medical and lay papers that obstetrical mortality has not improved since the employment of the aseptic methods in anywhere nearly the same degree as has been the case in surgery. We are told that the United States stands almost at the bottom of the list of civilized nations in obstetrical mortality. This is a grave reflection upon the obstetrician and the general practitioner as well who delivers and probably will deliver for many years to come by far the greater number of women especially those in the rural districts where hospital facilities are not available.

The members of the New England Obstetrical and Gynecological Society believe that the opprobrium which American midwifery has acquired is not entirely deserved. They believe that an investigation of the matter should be made not by lay writers selling their articles to popular magazines but by those best qualified to make such an investigation—the medical profession itself. Despite the vigorous protest, those charged with the compilation of vital statistics continue to class as obstetrical deaths many cases which do not properly belong in that category. If the woman with chronic heart disease, tuberculosis, diabetes or other chronic or acute disease happens to die during pregnancy or in the early puerperium her death is listed as an obstetrical death. This is manifestly unfair. Whatever such an investigation would disclose the Society wishes to know the facts. If the members of the medical profession are at fault they should know it and take measures by increased instruction in medical schools and hospitals and education of the profession to further lower maternal mortality. If the statistics are found to be misleading an effort should be made to counteract sensational journalism by authentic articles in the lay press. The obstetrical division of the Massachusetts Medical Society has been conducting such an investigation in collaboration with the state department of health and with the hearty co-operation of the profession at large. The Society hopes that similar work may be done in all New England states which will result in a few years in the compilation of reliable data untinged by sensationalism.

The Society also voted to instruct the President to urge before the Council on Medical Education of the American Medical Association that the hours given to instruction in obstetrics in the medical schools be increased.

The day was brought to a close by a dinner at Squantum Club and from all appearances it was thoroughly enjoyable. The next meeting of the Society will be held in New Haven in the fall.

HOSPITALS

Memorial Hospital

A staff meeting was held June 12th, 1930, being called to order at 9:15 by Dr. E. S. Wing. Minutes of the preceding meeting were read and approved.

Dr. Chas. F. Sweet spoke of his experiences in medico-legal cases: 1 — Defined cases requiring presence and action of medical examiner. 2—Accidental, suicidal, homicidal deaths discussed. Several very interesting cases were quoted and described in the speaker's own inimitable manner.

The meeting was adjourned at 10:07 P. M.

Stanley Sprague, M.D.,
Secretary.

MISCELLANEOUS

A CRITICAL CONSIDERATION OF OBESITY

Obesity has been described as a state in which the amount of fat stored in the body is excessive. The depletion of this fat reserve therefore is the end sought in all attempts at the reduction of obesity. Theoretically, at least, this should be accompanied by a reduction in the energy intake to such an extent that the body will be required by the exigencies of the inevitable metabolism to consume some of its energy reserves to meet the current needs. The process may be accelerated by increasing the demands for energy. This means, first of all, by augmenting the amount of work done. Muscular exercise always increases the conversion of energy and is the foremost factor in determining the food requirement on the one hand or the tissue catabolism on the other.

These are the seemingly simple principles on which the augmentation, maintenance or depletion of the body energy reserves may be assumed to depend in adult life when growth or the production of new tissue is not under consideration. Gain or loss of fat becomes a matter of physiologic bookkeeping, representing the balance between supply and demand in the organism. If this were the whole story, the problem of altering body weight should be comparatively simple. It usually is. Now and then, however, despite a marked reduction in the energy intake, decrease in body weight apparently is not attained. Indeed, persons have been known actually to gain in weight on an admittedly inadequate energy intake. Such experiences have led to the classification of obesity into exogenous and endogenous types, the latter being ascribed to "constitutional disease that unrelentingly causes a progressive deposition of adipose tissue, independent of activity or dietary habit." As might be expected, the omnipotent endocrine glands are assumed to develop the anomaly in which restriction of food intake fails to lead to weight reduction.

In considering some of the assumptions of so-called endogenous obesity, Newburgh and Johnston[1] of the University of Michigan Medical School have insisted that obesity is always caused by an overabundant inflow of energy. The excess is deposited as adipose tissue. They remind us of features that are all too often overlooked in the study of human size: that body weight is the resultant of two factors—gain or loss of tissue and a gain or loss of water. The loss of one and a gain in the other may neutralize each other; or a large retention of water may cause a gain in weight, even though body tissue has been consumed, and may lead an observer who fails to take water exchange into account to draw erroneous conclusions.

The studies at Michigan in which the water balance as well as the energy debit and credit are taken into account leave no doubt that the response of various types of obese people does not differ from that of normal people. All of them oxidize body tissues in accord with the prediction from the caloric deficit. Retention of water may proceed for several days or loss of water may be suddenly precipitated. The body weight from day to day under conditions of reduction in energy intake may show no parallelism to the expected figures. In the long run, however, the body weight almost always approaches the predictable figure. In reply to the query as to how long a person may maintain his weight in the face of a diet deficient in calories, Newburgh and Johnston cite their own observations that the failure to lose weight is only a matter of days. Thus far the longest period observed by them has been sixteen days; usually it is shorter.

Much of the mystery in the attempts at reduction of obesity is thus dispelled. The principle of the conservation of energy remains intact when the facts of the behavior of the obese are presented in quantitative fashion. The disproportions leading to obesity may be classified, according to the Michigan clinicians, into two categories. The first group includes various human weaknesses, such as overindulgence and ignorance. The second group is composed of conditions that cause a decrease in the requirement for energy, such as lessened activity or lowering of the basal metabolic rate for any reason. If the long established food habits do not respond to this lessened demand, obesity is inevitable. The fundamental feature of obesity remains a positive energy balance. On that basis it can be intelligently treated.—*Jour. A. M. A.*, July 5, 1930.

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[1]Newburgh, L. H., and Johnston, Margaret W.: Endogenous Obesity—A Misconception, *J. Am. Dietet. A.* 5:275 (March) 1930.

FOOD POISONING

The expression "ptomaine poisoning" has been for the most part abandoned in medical discussions and diagnosis during the last few years. Ptomaine was the term introduced by Selmi about 1850 and applied to a group of basic substances, having alkaloidal properties, which were obtained from decomposing proteins and were highly toxic to animals, when injected. Presently, however, the rapidly developing knowledge of bacteria and their possible role in the genesis of disease directed attention to the microbiotic aspects of the subject.

As Damon[1] has pointed out, since the studies were made that directed attention to the possibility that bacteria might be the etiologic agents in causing illness in man in cases that had previously been regarded as ptomaine poisoning, the bacteriologic investigations of many workers have widened our field of knowledge and shown that a variety of bacterial species are capable of growing in foodstuffs under widely different conditions, and that they must be held accountable for many, if not nearly all, cases of food poisoning formerly attributed to ptomaines. In fact, Damon notes further, at the present time improved methods of detection are more and more frequently indicating that infection of food is responsible for illness in those who consume it. It thus seems probable to Damon that practically all food poisoning, in which illness is not induced by a hypersensitiveness of the individual or by a metallic poison, or in which an alkaloid of vegetable origin is not involved, is due to infection.

Thus the bacterial theory of food poisoning has gradually supplanted the older and somewhat less specific ptomaine or chemical theory. Perhaps it would be more in accord with actual practice to say that investigators of cases of food poisoning, as the present nomenclature expresses it, seek the presence of pathogenic bacteria or their products in the food under suspicion. There are increasing indications that toxic material as well as noxious bacteria need to be taken into consideration. Indeed, this may in some ways represent a return to the older chemical theory, with the exception that the materies morbi is directly attributed to the metabolism of well defined and recognized microorganisms. This is exemplified in the recent report of Jordan[2] of the University of Chicago. Incriminated food secured during an outbreak of food poisoning contained a yellow staphylococcus in considerable abundance. This apparently produced a toxic substance in broth, as shown by the effect of the sterile filtrate, which, on being swallowed by a human volunteer, gave rise to nausea, diarrhea and prostration of the same character as that observed in the original outbreak. Furthermore, Jordan has now demonstrated that various strains of staphylococci of diverse origin and different cultural characters are capable of generating in broth a substance which, when taken by mouth, produces gastro-intestinal disturbance. This substance is destroyed by boiling and is either destroyed or greatly weakened by being heated at from 60 to 65 C. for thirty minutes. It seems not unlikely to Jordan that bacteria of other groups may produce similar substances that are irritating to the human alimentary tract. From the standpoint of recognizing the immediately harmful factor in many instances of food poisoning, the development of toxic derivatives deserves new emphasis. It is fortunate that such toxic substances usually lose their potency when suitably heated.—*Jour. A. M. A.*, July 5, 1930.

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[1]Damon, S. R.: Food Infections and Food Intoxications, Baltimore, Williams and Wilkins Company, 1928.

[2]Jordan, E. O.: The Production by Staphylococci of a Substance Causing Food Poisoning, *J. A. M. A.* 94:1648 (May 24) 1930.

SCURVY IN ADULTS

The relative rarity of scurvy in adults and the greater frequency of other diseases characterized by hemorrhage leads often to a tentative diagnosis of purpura hemorrhagica, symptomatic purpura, hemophilia, anemia, leukemia or sepsis before scurvy is considered. It should be emphasized that an exact and careful inquiry into the nutritional habits of patients is an important part of the collation of a history. In the two cases reported by Manuel G. Gichner and Milton Sherry, Baltimore (*Journal A. M. A.*, July 5, 1930), the essential illuminating fact that there had been for a long time a dietary insufficiency was brought out only after careful studies had excluded as casual the more usual syndromes in which the presenting symptoms occur.